

REMARKS

Claims 1, 3-16, 18-29, and 31-41 are pending in the present application. Claims 1, 8, 14, 15, 16, 23, 29, and 36 were amended. Reconsideration of the claims is respectfully requested.

L 35 U.S.C. § 103, Obviousness, Claims 1, 3, 5-9, 12-16, 18, 20-24, 27-29, 31, 33-37, 40, and 41

The Examiner has rejected claims 1, 3, 5-9, 12-16, 18, 20-24, 27-29, 31, 33-37, 40, and 41 under 35 U.S.C. § 103 as being unpatentable over Myerson, U.S. Patent No. 5,892,917 ("Myerson") in view of Boyd et al., U.S. Patent No. 6,112,238 ("Boyd"). This rejection is respectfully traversed.

The Examiner bears the burden of establishing a *prima facie* case of obviousness based on the prior art when rejecting claims under 35 U.S.C. § 103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). For an invention to be *prima facie* obvious, the prior art must teach or suggest all claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The Examiner has not met this burden because all of the features of these claims are not found in the cited references as believed by the Examiner. Therefore, the combination of Myerson and Boyd would not reach the presently claimed invention in these claims.

Amended independent claim 1 of the present invention, which is representative of amended independent claims 8, 14, 15, 16, 23, 29, and 36, with regard to similarly recited subject matter, reads as follows:

1. A method in a data processing system for maintaining data integrity in logs, the method comprising:
 - reviewing a log, wherein the log includes a set of time segments, and wherein each time segment within the set of time segments is determined by successively comparing the average time gaps of adjacent predetermined chunks of time, and wherein the set of time segments include at least one time segment defined by a user;
 - determining whether the log contains a data loss, wherein the determining step includes analyzing each time segment within the set of time segments to determine whether a time segment gap tolerance has been exceeded, and wherein the time segment gap tolerance is determined by multiplying a total number of clean logs by a standard deviation of a

time gap average for the total number of clean logs and adding that product to the time gap average; and
adding data to replace the data loss in the log to increase integrity of the log if a determination is made that a data loss has occurred.

With regard to claim 1, the Examiner stated:

Myerson discloses a method in a data processing system for maintaining data integrity in logs, the method comprising reviewing a log (column 2, lines 49-52), determining whether the log contains data loss (column 2, lines 16-21 and column 2, line 65 to column 3, line 8), wherein the determining step includes analyzing the log to determine whether a gap tolerance has been exceeded (i.e. the frequency of requests corresponding to the time gap between request is compared to a percentage of the reference frequency of requests) (column 8, line 66 to column 9, line 2) and adding data to replace the data loss in the log to increase integrity of the log if a determination is made that a data loss has occurred (column 2, line 65 to column 3, line 8 and column 9, lines 2-4).

Office Action, dated June 30, 2005, pages 2 and 3.

Myerson teaches a method for analyzing a Web site log file and generating an expanded log file that compensates for information caching and gateway based Web site access. Myerson, Abstract. In other words, Myerson is directed toward adding data to log files when caching or gateway based access occurs. In addition, Myerson teaches supplementing a log file to more accurately represent object requests made by a client than the initial sequence of log records in the log file. Myerson, Abstract. Consequently, Myerson teaches adding reasonable data to log files when caching or gateway based access occurs in order to accurately represent server content access by clients.

For example, the log file used to create the expanded log file contains information representing an internet address, authenticated user name of the requester, ident name, timestamp, request, response code, and response size (Myerson, column 5, lines 23-55), as shown in Figure 3 of Myerson below:

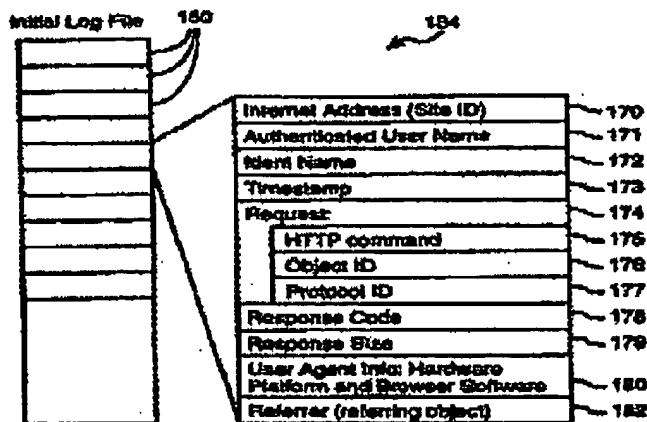


FIGURE 3

The expanded log file as taught by Myerson includes information from the initial log file, as well as, additional information fields added by the log expander procedure, as depicted in Figure 4 of Myerson below:

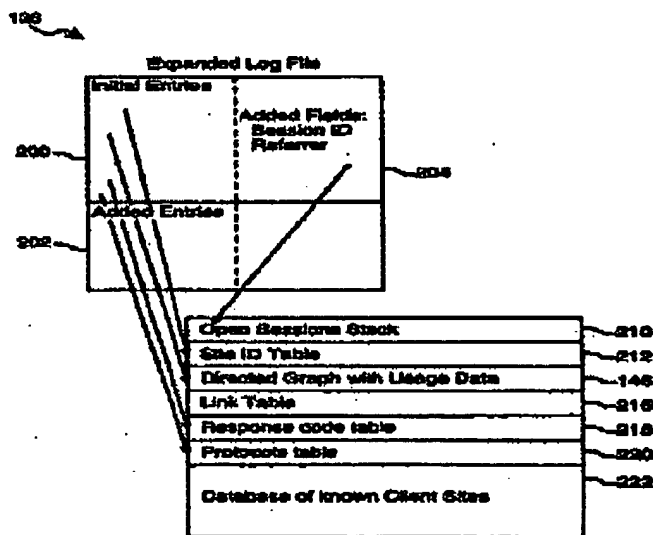


FIGURE 4

As is evident from Figures 3 and 4 above, Myerson only teaches having a timestamp within the file. This time stamp specifies the communication start time between the

client computer and the Web site. Myerson, col. 5, lines 43-45. In other words, the timestamp information contained within the log is a specific time relating to the start of a client session. Myerson makes no reference to utilizing or recording a segment of time within the log.

However, as amended, claim 1 of the present invention recites that the log includes a set of time segments. Support for this recited claim 1 feature may be found in the current specification on page 18, lines 9-18. By way of example, items 418, 420, 422, and 424 in Figure 4B of the present invention below illustrates exemplary time segments in a log.

418 **FIG. 4B** 414

	Time Segments	Time Gap Tolerance (hrs)	
418	12AM-5AM	5200	426
420	8AM-11AM	1400	428
422	12PM-2PM	1900	430
424	6PM-11PM	10400	432

434 436

As Figure 4B clearly shows above, the exemplary time segments illustrated in the present invention are 3 and 5 hour segments. In contrast, Myerson merely teaches automated timestamp data indicating the start of a client session. Therefore, Myerson does not teach or suggest that the log includes a set of time segments as recited in claim 1. Because Myerson does not teach or suggest that the log includes a set of time segments as recited in claim 1, Myerson cannot teach or suggest that each time segment within the set of time segments is determined by successively comparing the average time gaps of adjacent predetermined chunks of time as further recited in amended claim 1.

In addition, since Myerson does not teach or suggest that the log includes a set of time segments as recited in claim 1, then Myerson cannot teach or suggest analyzing each time segment within the set of time segments to determine whether a time segment gap tolerance has been exceeded and that the time segment gap tolerance is determined by

multiplying the total number of clean exemplary logs by a standard deviation of a time gap average for the total number of clean exemplary logs and adding that product to the time gap average as further recited in amended claim 1. Support for this recited claim 1 feature may be found in the specification on page 17, line 14 – page 19, line 5. But, the Examiner stated in the current Office Action on page 3 that Myerson teaches “analyzing the log to determine whether a gap tolerance has been exceeded (i.e. the frequency of requests corresponding to the time gap between request is compared to a percentage of the reference frequency of requests” in column 8, line 66 to column 9, line 2. This particular passage from Myerson cited by the Examiner reads as follows:

In other words, In one preferred embodiment, if the frequency of requests for the most popular objects is at least 15% lower than the frequency of requests found in the reference request profile, then the threshold amount of object caching for performing additional log entry insertion has been detected.

Myerson, column 8, line 66 – column 9, line 4.

In other words, Myerson is measuring or counting the number of requests over some predetermined amount of time for the purpose of determining the request frequency. The determined frequency of requests is compared to a reference request profile in order to determine if caching has occurred. If the number of requests is 15 percent lower than the reference request profile number, then additional log entry insertion is performed. Thus, Myerson teaches a specific number or frequency of client requests as the threshold for determining if additional log entry insertion is necessary.

In contrast, amended claim 1 recites analyzing each time segment within the set of time segments to determine whether a time segment gap tolerance has been exceeded. The time segment gap tolerance is determined by multiplying the total number of clean exemplary logs by the standard deviation of the time gap average for the total number of clean exemplary logs and adding that product to the time gap average as further recited in claim 1. In other words, the time segment gap tolerance recited in claim 1 is calculated by measuring the average length of time gaps in clean logs that do not contain time gaps due to data loss. Consequently, the present invention recited in claim 1 measures specific lengths of gap time in each log in order to determine if insertion of additional data is

necessary due to data loss. By way of example, items 426, 428, 430, and 432 of Figure 4B show time gap tolerances of 8200, 1400, 1900, and 10400 milliseconds, respectively. Thus, the current invention recited in claim 1 measures the amount of gap time in each time segment in order to determine if the time gap tolerance has been exceeded, whereas Myerson counts the number of client requests over a period of time in a log for the purpose of determining if the request frequency threshold has been breached. Therefore, Myerson does not teach or suggest analyzing each time segment within the set of time segments to determine whether a time segment gap tolerance has been exceeded as recited in claim 1. As a result of the foregoing, Myerson does not teach or suggest all claim limitations recited in amended claim 1 of the present invention.

Boyd does not cure the deficiencies of Myerson. Boyd teaches a method for analyzing traffic data in a distributed computing environment. While the server receives traffic data hits continuously, separate sets of analysis results are stored for each discrete reporting period, called a time slice. Boyd, column 3, lines 57-59. Even though Boyd teaches time slices, Boyd does not teach or suggest that each time segment is determined by successively comparing the average time gaps of adjacent predetermined chunks of time as recited in amended claim 1 of the present invention. Boyd uses a specific time period for the purpose of determining the length of the time slice. In contrast, the present invention compares successive average time gaps in order to determine each time segment as recited in claim 1. Boyd neither teaches, nor suggests the desirability of, measuring successive average time gaps for determining a time slice.

Boyd is directed towards analyzing traffic data in a distributed computing environment through the use of results tables categorized by associated data types. Concerning these results tables, Boyd teaches "[e]ach entry in a microtable 45A contains an index 46 pointing to a record within its associated results table 40B which requires adjustment for inflation." Boyd, column 7, lines 33-35. Boyd explains the need for inflation adjustment through an example: "A count of the number of open sessions spanning each time slice is made in the user session table 43 . . . [d]uring analysis, the access information is adjusted to remove the inflation." Boyd, column 7, lines 46-54. Boyd is explicit in how this inflation adjustment is conducted: "The summary of the time frame of the first and second time slice will be inflated unless the double-counts are

subtracted from the number of open sessions for this web page for the second time slice." Boyd, column 11, lines 3-6. Boyd teaches subtracting counts from summarized results due to "double, triple, or multiple counting of open sessions spanning multiple time slices." Boyd, column 7, lines 61-62. Therefore, Boyd is directed towards meeting the "need for a system and method to efficiently process the voluminous amounts of access information generated by web servers in a timely, expedient manner without the attendant costs associated with large scale hardware requirements," by providing a system that "enables the server 10 to efficiently analyze traffic data by utilizing existing summaries 19A-C whenever possible" and subtracts multiple counting to adjust for data inflation. Boyd, column 2, lines 7-11, column 9, lines 43-47, respectively. In summary, Boyd efficiently analyzes server traffic through summarizing existing summaries and subtracting inflated counts.

Although the Examiner relies upon Boyd to teach a time segment defined by a user, the purpose of Boyd's one-pass routine is to "summarize the access information recorded for a user-requested time frame," which "enables the server 10 to efficiently analyze traffic data by utilizing existing summaries 19A-C whenever possible." Boyd, column 9, lines 17-47. Boyd does not mention determining time gaps or time gap tolerances, much less the need for analyzing each time segment to determine whether a time segment gap tolerance has been exceeded as recited in claim 1 of the present invention. The reason Boyd does not mention time gaps and time gap tolerances is because Boyd is concerned with summarizing data previously existing for time slices, not with the present invention's time gap analysis of logs in order to determine which logs to process differently.

Furthermore, one of ordinary skill in the art would not combine Myerson with Boyd when each reference is considered as a whole. In considering the references as a whole, one of ordinary skill in the art would take into account the problems recognized and solved. As discussed above, Myerson teaches a method for adding data to log files when caching occurs and Boyd teaches efficiently analyzing server traffic through summarizing existing summaries and subtracting inflated counts. Thus, Myerson is directed towards supplementing log files with cached data, whereas Boyd is directed towards efficiently analyzing server traffic while subtracting inflated counts. In contrast,

the present invention recited in claim 1 is directed towards supplementing existing log files when a time gap tolerance is exceeded.

Even if Myerson and Boyd were properly combinable, the result of such a combination would not be the invention as recited in amended claim 1. The combination of Myerson and Boyd produces an invention that summarizes log data previously existing for time slices in order to subtract inflated counts and adds data to the log when caching occurred. In contrast, as amended, claim 1 analyzes each time segment within a set of time segments in a log to determine whether a time segment gap tolerance has been exceeded. Therefore, the combination of Myerson and Boyd fails to reach the presently claimed invention because all of the features recited in amended claim 1 are not found in the cited references. Accordingly, the rejection of independent claims 1, 8, 14, 15, 16, 23, 29, and 36 as being unpatentable over Myerson in view of Boyd has been overcome.

In view of the arguments above, amended independent claims 1, 8, 14, 15, 16, 23, 29, and 36 are in condition for allowance. As a result, claims 3, 5-7, 9, 12, 13, 18, 20-22, 24, 27, 28, 31, 33-35, 37, 40, and 41 are dependent claims depending on independent claims 1, 8, 16, 23, 29, and 36, respectively. Consequently, claims 3, 5-7, 9, 12, 13, 18, 20-22, 24, 27, 28, 31, 33-35, 37, 40, and 41 are also allowable, at least by virtue of their dependency on allowable claims. Therefore, the rejection of claims 1, 3, 5-9, 11-18, 20-24, 26-31, 33-37, and 39-41 under 35 U.S.C. § 103 has been overcome.

II. 35 U.S.C. § 103, Obviousness, Dependent Claims 4, 10, 19, 25, 32, and 38

The Examiner has rejected dependent claims 4, 10, 19, 25, 32, and 38 under 35 U.S.C. § 103 as being unpatentable over Myerson in view of Boyd and further in view of Wilkerson et al., U.S. Patent No. 5,778,387 ("Wilkerson"). This rejection is respectfully traversed.

As demonstrated in Section I above, neither Myerson, nor Boyd, teach or suggest all claim limitations recited in amended independent claims 1, 8, 14, 15, 16, 23, 29, and 36. In particular, Myerson and Boyd do not teach or suggest that each time segment within the set of time segments is determined by successively comparing the average time gaps of adjacent predetermined chunks of time as recited in the above listed independent claims. In addition, Myerson and Boyd do not teach or suggest analyzing

each time segment within the set of time segments to determine whether a time segment gap tolerance has been exceeded and that the time segment gap tolerance is determined by multiplying a total number of clean logs by a standard deviation of a time gap average for the total number of clean logs and adding that product to the time gap average as further recited in the independent claims of the present invention. These above recited claim features also are not taught or suggested by Wilkerson.

Wilkerson teaches a method for automation of the database recovery process. A person not technically skilled in the use of a computer can operate the new procedure. In accordance with the invention, the user identifies the corrupted database and enters the database name and estimated timestamp for the computer. The database recovery system automatically creates program control language and executes the language wherein the result provides a new, more accurate time stamp. The recovery system then creates additional program control language using the new time stamp and executes the program control language which then recovers the uncorrupted data. The user does not need to look up, write, or enter any program control language because these functions are fully automated. Wilkerson, Abstract. In other words, Wilkerson is directed towards an automated database recovery process for people who are not technically skilled in the use of a computer.

Although, Wilkerson teaches the use of estimated timestamps for the purpose of calculating a new, more accurate time stamp, which is then used to recover uncorrupted data, Wilkerson does not teach or suggest analyzing a set of time segments in a log to determine whether a time gap tolerance has been exceeded for a time segment as recited in the independent claims. Instead, Wilkerson is directed toward a fully automated recovery system where users do not need to look up, write, or enter any program control language. As a result, Wilkerson does not teach or suggest the above recited independent claim limitations.

Because Myerson, Boyd, and Wilkerson do not teach or suggest that each time segment within the set of time segments is determined by successively comparing the average time gaps of adjacent predetermined chunks of time and that analysis of each time segment is used to determine whether a time segment gap tolerance has been exceeded, the combination of Myerson, Boyd, and Wilkerson cannot teach or suggest

these recited independent claim features. As a result, dependent claims 4, 10, 19, 25, 32, and 38 of the present invention also are allowable, at least by virtue of their dependence on allowable claims. Accordingly, the rejection of claims 4, 10, 19, 25, 32, and 38 as being unpatentable over Myerson in view of Boyd and further in view of Wilkerson has been overcome.

III. 35 U.S.C. § 103, Obviousness, Dependent Claims 11, 26, and 39

The Examiner has rejected dependent claims 11, 26, and 39 under 35 U.S.C. § 103 as being unpatentable over Myerson in view of Boyd and further in view of Wu et al., U.S. Patent No. 5,931,912 ("Wu"). This rejection is respectfully traversed.

As shown in Section I above, Myerson and Boyd do not teach or suggest all claim limitations recited in amended independent claims 1, 8, 14, 15, 16, 23, 29, and 36. Specifically, neither Myerson, nor Boyd, teach or suggest that each time segment within the set of time segments is determined by successively comparing the average time gaps of adjacent predetermined chunks of time as recited in the independent claims. Moreover, Myerson and Boyd do not teach or suggest analyzing each time segment within the set of time segments to determine whether a time segment gap tolerance has been exceeded and that the time segment gap tolerance is determined by multiplying a total number of clean logs by a standard deviation of a time gap average for the total number of clean logs and adding that product to the time gap average as further recited in the independent claims of the present invention. These above recited claim features also are not taught or suggested by Wu.

Wu teaches a method to map client access patterns in a stateless hypertext server. Wu, Abstract. Information about a request is recorded, including the hyperlink source (i.e., the hyper-text object that refers the client to the target object) and the hyper link target (i.e., the hypertext object being accessed). A hyperlink access pair is formed from the hyperlink source and target, which represents a step in the user traversal path on the hypertext objects. Hyperlink access pairs may then be mapped into hyperlink access groups. These hyperlink groups can be used to provide object usage statistics. Wu, column 3, line 55 – column 4, line 8. In addition, Wu teaches time stamps, time gaps between time stamps, and whether or not time gaps are greater than pre-specified times.

Wu, column 7, lines 36-39 and column 9, lines 63-64, respectively. As taught by Wu, the time gap represents the difference between the timestamp of the current log and the timestamp of the access pair in the tail of an active session. Wu, column 7, lines 36-39. In other words, Wu teaches mapping client access patterns in order to provide user-oriented object usage statistics.

Even though Wu teaches a time gap, the time gap recited in the present invention is not analogous to Wu's time gap. The distinction is in how the time gaps are applied in Wu and the present invention. Wu's time gap is a singular calculation, which is the difference between a current log's time stamp and an access pair's time stamp. In contrast, the present invention provides a log's time segment, which is determined by successively comparing the average time gaps of adjacent predetermined chunks of time. Additionally, the time segment recited in the present invention is analyzed numerous times for the purpose of determining if the time gap tolerance has been exceeded. By way of example, item 418 of Figure 4B of the present invention illustrated in Section I above shows a five hour time segment in a log. This exemplary five hour time segment is analyzed using a time gap tolerance of 8,200 milliseconds (item 426 of Figure 4B), which would result in over 2,000 comparisons. The 2,000 comparisons from the immediately preceding example are distinguishable from Wu's singular comparison between the time stamps of a log and an access pair.

Furthermore, the 8,200 millisecond time gap tolerance from the present invention's example above was determined by multiplying a total number of clean logs by a standard deviation of a time gap average for the total number of clean logs and adding that product to the time gap average as recited in the independent claims. Consequently, in determining the time gap tolerance a time gap average for the total number of clean logs is required to be calculated as well in the present invention. Wu neither teaches, nor suggests the desirability of, calculating an average time gap for the total number of clean logs as recited in the independent claims of the present invention.

As a result of the foregoing arguments, Wu does not teach or suggest that each time segment within the set of time segments is determined by successively comparing the average time gaps of adjacent predetermined chunks of time and analyzing the set of time segments to determine whether a time gap tolerance has been exceeded as recited by

the independent claims of the present invention. Since Myerson, Boyd, and Wu do not teach or suggest the above recited independent claim limitations, then the combination of Myerson, Boyd, and Wu cannot teach or suggest these recited independent claim features. Therefore, dependent claims 11, 26, and 39 of the present invention also are allowable, at least by virtue of their dependence on allowable claims. Accordingly, the rejection of claims 11, 26, and 39 as being unpatentable over Myerson in view of Boyd and further in view of Wu has been overcome.

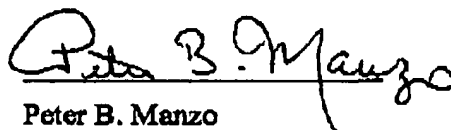
IV. Conclusion

It is respectfully urged that the subject application is patentable over the cited prior art references and is now in condition for allowance.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,



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